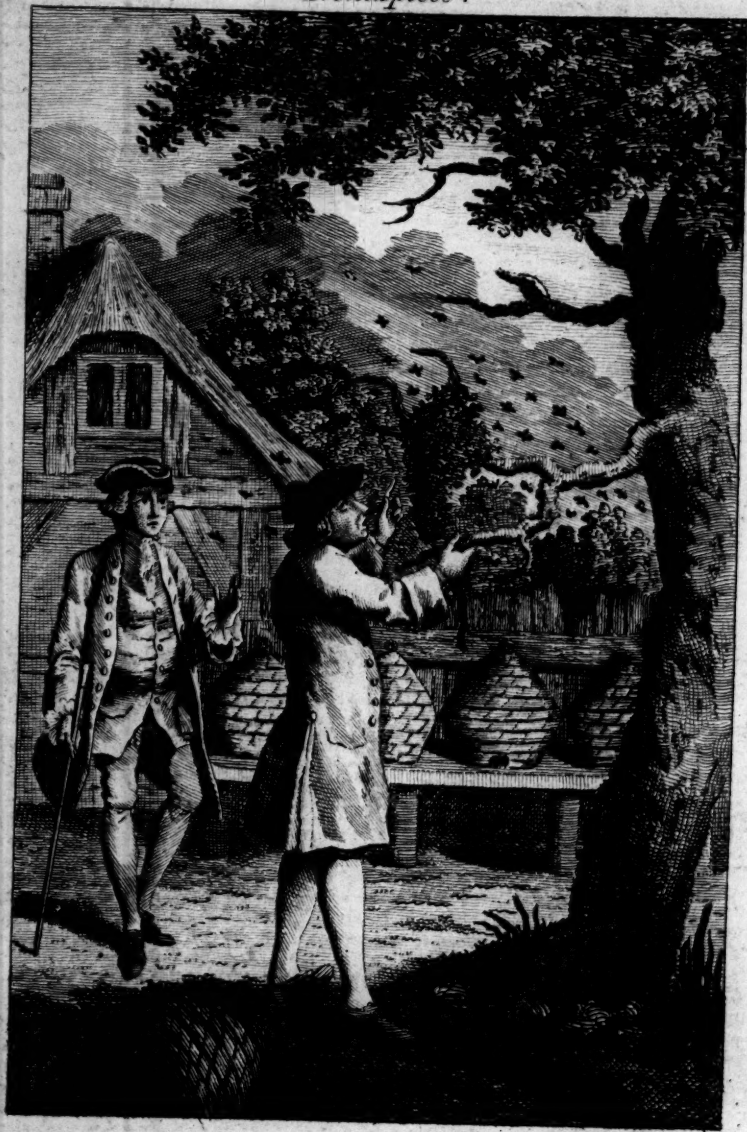


Frontispiece.



The Queen Bee.

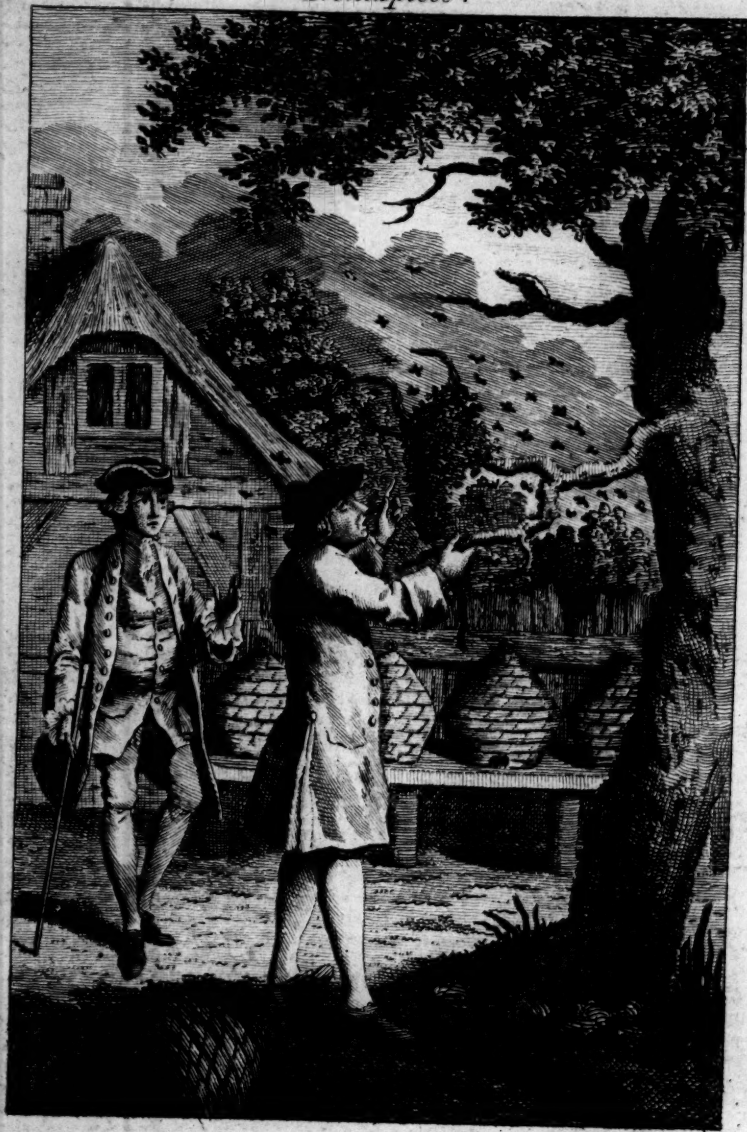


The Working Bee.



The Drone.

Frontispiece.



The Queen Bee.



The Working Bee.



The Drone.

A
COMPLETE GUIDE
TO THE
Mystery and Management
OF
B E E S.

CONTAINING

Instructions how to manage them with respect
to their BREEDING, GATHERING,
SWARMING, HIVING, FEEDING, &c.
to considerable Advantage :

ALSO,

Directions whereby the GOVERNOR or QUEEN-BEE
may be distinctly known;

TOGETHER WITH

Several curious Matters concerning them, deduced
chiefly from Experience.

Being the most valuable Discovery hitherto found out.

K
BY

W. WHITE, Sen. of *Shutford*, near *Banbury*, *Oxon.*

Who, in the Year 1766, was honoured with a Premium, by the
SOCIETY OF ARTS AND SCIENCES, for his singular
Abilities therein.

L O N D O N :

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TO THE
RIGHT HONOURABLE
LORD COMPTON.

MY LORD,

IT is not from a principle of vanity or self importance that I presume to inscribe the following sheets to Your Lordship; but from the known consideration of Your Lordship's generosity and good-nature, in giving encouragement to whatever may tend to the advantage of the community. The above good qualities in Your Lordship are so well known, that it would favour of
flattery

flattery were I to say any more upon them; which imputation I am willing to avoid, as it would undoubtedly be construed an insult upon Your Lordship's understanding.

The following observations on the Management of Bees, (being the result of many years experience) though not wrote in a masterly stile, or with all the graces of language, yet contain such plain directions, that no person can misunderstand them; and, should they meet with Your Lordship's approbation, I shall be abundantly overpaid for my time and trouble spent in the study.

In hopes that Your Lordship
will

(v)

will treat them with candour, and
take them under your protection, I
remain,

MY LORD,

YOUR LORDSHIP'S,

Most obliged,

and obedient,

humble Servant,

Banbury,
Sept. 1771.

WILLIAM WHITE.

(v)

will treat them with candour, and

take them as they find them.

remains, I think, to be said

is that I am, I think, a

man of peace, and of

your friends.

Yours truly,

Wm. Lloyd Garrison

and obedient

servant

Wm. Lloyd Garrison

to the cause of

the oppressed

Wm. Lloyd Garrison

and his friends

in the cause of

the oppressed

Wm. Lloyd Garrison

and his friends

in the cause of

the oppressed

P R E F A C E.

IT is become so usual a custom, amongst authors in general, to give an introductory preamble, by way of preface, to their intended subject, that I should perhaps be deemed somewhat particular and whimsical in my opinion, should I not follow the usual form of apologizing for what I have said in the following sheets; especially as I do not find the least objection against it, but rather think it very necessary, to give the reader some of the reasons which induced me to submit them to the perusal of the public.

I am very sensible that there are many
treatises

treatises on the Management of Bees already extant; but, in general, their observations proceed more from conjecture than experience; for which reason there are many people who ruin their stocks of bees, by an implicit adherence to what these authors advance upon bare supposition. Others there are, who, though totally unacquainted with the study of bees, will, nevertheless, for the sake of a little money, make a compilation from the several books already published on this subject, and palm what they have thus collected, without knowledge, judgment, or propriety, upon the world, as their own proper observations.

To prevent, therefore, the mischiefs arising from a scrupulous attention to those pernicious observations, was my principal

principal aim in the following pages; and I flatter myself, that there is not one in Europe better qualified to judge of the management proper for those useful animals than myself, having, for the space of thirty years, and upwards, made it my constant study, and having, by repeated experiments, attained the certainty and infallibility of the methods I have herein prescribed.

The reader may perhaps think that I arrogate too much to myself, and that my vanity has got the better of my reason, having here only my own word for it; but he will give me leave to observe, that I have the unanimous applause of the gentlemen who keep bees in this and the neighbouring counties; being frequently sent for to manage stocks for gentlemen, when almost past
the

the possibility of human aid ; (at least they have thought so) and yet I have recovered them, to the surprize of all present.

As nothing could have persuaded me to commence author, but a regard for the interests of the community, so the rules and directions for managing bees are here laid down in a plain, concise, and perspicuous manner; and as the following work was principally designed for the use of those people in the country who either do, or may have occasion hereafter to keep bees, the directions contained therein are made intelligible to the meanest understanding.

I can never enough testify my abhorrence of the cruelty of destroying the bees, when the honey is taken away ; for which reason, I have here given such directions,

directions, that the honey may be taken away, and the bees preserved; which is a consideration certainly worth the attention of every humane being.----A celebrated poet sweetly sings,

Ah, see where robb'd, and murder'd, in that pit
Lies the still heaving hive! at evening snatch'd,
Beneath the cloud of guilt concealing night,
And fix'd o'er sulphur: while, not dreaming ill,
The happy people, in their waxen cells,
Sat tending public cares, and planning schemes
Of temperance, for Winter poor; rejoiced
To mark, full flowing round, their copious stores.
Sudden the dark oppressive steam ascends;
And, us'd to milder scents, the tender race,
By thousands, tumble from their honeyed domes,
Convolv'd, and agonizing in the dust.
And was it then for this you roam'd the Spring,
Intent from flower to flower? for this you toil'd
Ceaseless the burning Summer-heats away?
For this in Autumn search'd the blooming waste,
Nor lost one sunny gleam? for this sad fate?
O Man! tyrannic lord! how long, how long,

Shall

Shall prostrate Nature groan beneath your rage,
 Awaiting renovation? When obliged,
 Must you destroy? Of their ambrosial food
 Can you not borrow? and, in just return,
 Afford them shelter from the wintry winds;
 Or, as the sharp year pinches, with their own
 Again regale them on some smiling day?
 See where the stony bottom of their town
 Looks desolate, and wild; with here and there
 A helpless number, who the ruin'd state
 Survive, lamenting, weak, cast out to death.

Upon the whole, if my directions
 are understood, my intention is fulfilled; and I hope the candid reader
 will excuse any inaccuracies in language or grammar, I never having the
 advantage of a grammatical education;
 and my design being nothing more than
 that people, who may have suffered
 through ignorance of the nature of
 bees,

(xiii)

bees, may, by observing what is here written, make them turn out greatly more to their advantage.

W. WHITE.



CON-

more to their advantage. Women, written, make them turn out greatly does, may, by observing what is here

W. W. WHITE.



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AN
ESSAY ON BEES.

THE Bees (that nation of chymists to whom Nature has communicated the rare and valuable secret of enriching themselves, without impoverishing others; who extract the most delicious syrups from every fragrant herb, without wounding its substance, or diminishing its odours) should greatly excite our attention; for they not only, by their unwearied diligence and industry, teach mankind an admirable moral lesson, but also by their labours, supply them with such a valuable composition, that

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the

the whole art and device of man (how great soever it may be) could never be able to perform; I mean that of honey, which is the fruit of their labour; the virtue and benefit of which, as well as its value to mankind in general, is too well known and experienced, to require any further recommendation. The several other different insects with which Nature abounds, though curious to behold, yet are not in the least fit to be compared to the Bee. The gay butterfly, indeed, flutters her painted wings, and sips a little fantastic delight; but it is only for the present moment: the gloomy spider, worse than idly busied,

busied, is preparing his insidious nets for destruction, or sucking venom even from the most wholesome plants: while the frugal community of Bees are wisely employed in providing for futurity, and collecting a copious stock of the most balmy treasures of Nature.



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A

COMPLETE GUIDE, &c.

CHAP. I.

Of the Generation of Bees.

BEES are of so industrious a nature, that they will not lose one moment of their time ; for as it hath pleased the Great Creator to ordain all beings for the mutual support and assistance of each other, so hath he created bees, to perform the several offices of their calling, for the benefit of mankind ; of whose nature and properties, order, government, and wonderful performances, in general, I shall endeavour to give a more particular and satisfactory account,

than hath hitherto been made public by any person whatsoever.

And first, of that called the Queen-Bee.

The Queen-Bee is employed in the offices of breeding; for this bee blows all, and none other: she goes from cup to cup, and blows in her young, which nearly resembles a fly-blow; and after it is blown, continues in its first state three or four days; then, with a small matter of moisture, together with the heat of the bees, it comes to life, and changes to a kind of maggot; after which, they fill the cups about half full of water, and so seal it up close, where it lays, without life or motion, until the appointed time of God, which is generally about seven or eight days; after which time it breaks forth, by biting its way through the seal, emerges from its former lifeless state, and creeps among the other bees, till it finds itself capable of flying. In a warm day, it cautiously

cautiously comes forth out of the hive, and turns itself about several times before it takes wing. It does not go a great way from the hive for two or three days, till it finds itself capable of work, then goes eagerly to labour, and works as hard as possible, according to its strength; for there is no lost minutes with them, when the weather is seasonable.

Hear we may behold the admirable works of the Lord! for, after the bees have sealed up their young so close that not one breath of air can get in, they leave the rest of their work to the Almighty, who, in a most wonderful manner, furnishes them with legs and wings, horns and eyes, and a poisonous dart for their defence.

C H A P. II.

Of their Nature and Properties.

BEES are of a hot nature; and their honey is also of the same quality, for it is hot weather that breeds it: their temper, also, is well known to be of a hot nature, for if you give them the least affront, they will fall upon you with the ferocity of a lion; and if you strike them down to the ground several times, they will, notwithstanding, renew the fight, even until they lose their lives; so resolved are they upon vengeance, that they come with their dart ready drawn to strike. The first place they touch, and the instant it enters the skin, causes a swelling, with a sharp pain; nay, some people are so affected with their stinging, that they will swell most surprizingly.

In respect to their fighting one another, (which is most observable at the time they rob each other) it is amazing to see, how in an instant of time almost, they will kill thousands of each other; the place they aim at for a deadly stroke, is the under part of the body, after which, they will fall in an instant, it being the only place they can give a mortal wound.

Bees have all the five senses; though there does not appear all those outward organs of sensation which some other animals have.

Of all their senses, their sight seems weakest, yet is extremely clear at a distance, though not so quick near at hand; sometimes they fly against you, if you come suddenly cross them when they are laden; and also, if they light beside the door, near the mouth of the hive, they will run up and down, seeking for it, as if they were in the
dark;

dark; when they cannot find it, they rise up, and flying back a little way, turn again, with a better view. As many as fall besides the fool when it waxeth dark, ten to one but they lie abroad that night; and if, at any time, being disturbed, they fly out of the hive, although they be fresh and lusty, they will leap up and down, and fly to and fro, until they be weary; but by no means can they find their way in again: this, therefore, is the reason that, before they fly abroad, they take so much pains, as is observable they do, by rubbing their horns and eyes at the door, that they may the better discern their way forth, and with more exactness mark the door when they come back again.

Their smelling is quick and exquisite; for they will scent honey a mile from their hives; and when flying in the air, will scent any flowery meadow

or heath. As soon as the honey dew is fallen, they scent it, although the oaks which receive it, be a good distance off.



CHAP.

C H A P. III.

Of the Gathering and Working of Bees.

IN the course of this chapter, it is well worth our attention to contemplate the works of our good and great Creator; how and in what a wonderful manner he provides food for all his creatures, from the lowest insect to the lord of the forest, all of whom he hath created for his own wise purposes, and for the benefit of man! How beautifully every field and meadow is adorned and variegated; not so much to please the eye, as to provide food for his creatures, the least and most despicable of whom are not beneath the notice of the watchful eye of Providence, who has wisely ordained, that every plant, every flower, every shrub, and every tree, should produce something for the support of some one species of the animal creation!

When

When the sun is risen upon the earth, and shines with strength, the flowers all spread themselves wide open, for the bees to come and cull their sweets; and, on the contrary, when the sun begins to decline, and get low, near the horizon, then you may observe them shut themselves up close, to prevent the coldness of the night from damaging them.

Likewise, so wisely has the Almighty ordered all things, that the season of trees and flowers blowing, succeed one another in a regular gradation; for were the flowers and trees all to blow together, (that is, at one time) these little creatures would then have a very short harvest: but Eternal Wisdom has ordered it better; for they blow in their regular order, one thing after another; so that they have a most plentiful harvest, if the weather is favourable.----I have observed, that the chiefest flower that grows for the yielding them honey, is the white honey-suckle.

If

If you only sit down and observe their wonderful ways, when they are gathering in the fields and gardens, you may delight yourself to behold, (in the height of the honey season) what surprising knowledge they possess; busy in gathering that which is their most precious jewel, and as eager after it as men after the greatest object of their desires, yet, when they see a black cloud arise, they will immediately retire, and like a man from the mouth of a roaring lion, mind nothing else but their escape. This very thing is worthy admiration; to think what wisdom their Maker has bestowed upon them, even to observe the rising of the clouds, for when the holes of the hives are at the full width, I have seen them come home so fast that they have been a heap at it, as though they had been poured out of a vessel, and for eagerness to get into the hive, run all round it; on the contrary, with their usual sagacity, if
the

the threatening clouds seem to disperse another way, and the sky, near the horizon, appears somewhat clear, they will hurry out again to work, as eager as before, so that not one minute with them is lost, as they are sensible that their time is but short, as it certainly is, for there is but one month in the year that is full honey season, which is the last fortnight in June, and the first in July. If this time be very wet, or over dry and harsh, it renders them in a very bad condition; but if it should be temperate, and now and then a shower, honey then is plentiful.

One year I had forty-six stocks, and the weather became very wet, and continued so all the honey season; when they had done bearing in, I found them in a very disagreeable condition, for I took them all up but nine, and had not honey enough to make them able to stand, so hard was their situation. Sometimes there are stocks that are in
a very

a very bad condition, on account of the Queen-Bee's sickness, especially if it happen at the beginning of May; for that is the time they should lay their brood large, and she not being able to lay any, and the working bees being sensible of it, make them indolent, careless, and indifferent whether they work or not; and if they load on their legs, it is so small, that it is scarce discernable, for they know and are sensible that she is the cause of the increase of the whole family, and without her there is nothing but decay, which occasions them to work faintly, and with drooping spirits.

How wonderful is the wisdom of the Lord! who gives to these little animals knowledge to discern and foresee the destruction that is coming upon them!

On the other hand, if the Queen-Bee's disorder abate, and she is again restored to health; their drooping spirits

are

are soon revived, and they go forth again to labour, and work as hard as ever they did before; and, I have observed, that such a stock have come forward sooner than another; for being a little before in a bad and dangerous condition, and now got in great hopes of thriving, seem to manage all their concerns more effectually than those who have not been exposed to so much danger, and suffered such hardship.

It is very surprising to see what diligent slaves they are, even to the hazard of their lives.

On June the 1st, 1766, I was in a neighbouring garden, and there beheld a most sorrowful sight; I observed the bees of one stock to come running out of the hive to go to work, and came to the end of the stone, and dropped off to the ground, crawling along, one after another, to a great number, so that they covered a large space of ground before the hive; it had been showery and cold

for two or three days, which kept them in, and having now spent all their honey, death began to stare them in the face; in the first place, if they attempted to go out, they dropped on the ground, and not being able to raise themselves up, must certainly have died; on the other hand, if they kept within, they must certainly have perished with hunger, their food being, as I said before, entirely gone, and their strength exhausted.

To relieve the poor creatures from this calamity, I got some sugar and water, and mixing half a pint, turned them up, and poured it all over them, which was a very welcome medicine, for had I delayed coming at that very time, that stock must certainly have been lost; but, by so doing, I saved thousands of poor industrious labourers' lives; and gave my neighbour entire satisfaction, as his stock throve as well after as ever.

Many

Many people think they do not require feeding at that time of the year; no more they do, if they can go to work; but if kept in day after day, they will certainly be subject to this misfortune in a very small time, for they have not a sufficient quantity of honey in their bodies for their subsistence, neither can it rightly be called honey, until they have properly purged and concocted it by the vital motion of their bodies; but when they receive it a second time, it will remain with them twice as long as before, and be of more nourishment to them.

Honey would be strange stuff, were not the bees to purge, concoct, and clarify it through their bodies; but so has the all wise Creator ordained, to bring all things to perfection in due season, that when they receive it first from the flowers, it is almost like the sap of an herb; but when clarified through their bodies, it becomes per-

fect honey; it will not then putrify, but rather curdle and candy, which is very offensive to the bees, but little the worse for use, especially to make wine or mead.



CHAP.

C H A P IV.

Of the Hives proper for Bees.

MELISSUS, King of Crete, is reported to have been the first that invented and taught the use of hives, which is become so beneficial to the health of man.

As to the manner and form of hives in those days, it is impossible to describe particularly; though history affords several instances of honourable persons, in all ages, who have been so delighted with these excellent creatures, that several of them caused hives of thin horn to be erected in their gardens, that they might with greater admiration behold their work.

But, in the present times, we have fallen upon a happier invention, by having hives of glass, by which we may more minutely observe their operations :

yet it is thought that the antient form of hives were nearly resembling those which are now used in common: viz. the straw hives; which certainly are the best, and wherein the bees do best defend themselves from cold, especially when they hang round together, in manner of a sphere or globe; therefore, the nearer the hives come to that fashion, the warmer and safer they are.

The hives may consist of twelve straw rolls: let the three first be of one compass, a foot, or somewhat more in diameter; the four next above, more large, bellying out a little, each beyond his fellow, that the combs may be more firmly fastened; let the other five be by little and little narrowed to the center at the top, that it may be pyramidical, or sharp, like a sugar-loaf. This is the common form of a small hive.

But, to prevent any inconveniency, hives should be made of every size, so as to suit different swarms, either great

or

or small. Some hives will contain five pecks, with a swarm, yearly, and last, by succession, longer than those that are hived in small hives. But although a half-bushel hive will contain a competent stock, yet the swarms, for the most part, are small, and the castlings of themselves worth nothing; and the bees that are commonly left, when they have cast twice, are so few, that they quickly miscarry: therefore, let your hives be rather too little than too great; for if they are made too large, the bees will be more lazy, and work uncomfortably, because they despair ever to finish and furnish their house; for which reason, an over large hive is more prejudicial to their swarming than a small one: yet, if there be a competent number of bees, they will work industriously (though the vacuity be large) and compleat as much with combs as shall be sufficient for them.

When you have provided yourself

with hives, as your occasions require, clip off and cut away all the staring straws in the inside, and make it as smooth as you can; first wetting the skirts of the hive, then hold it over a blaze of straw, turning it constantly and regularly for a few moments; then let it stand a little, and do so a second time; and, if need require, a third time; afterwards rub it with a piece of mower's rubbing stone, by which means you will mightily ease the bees; for although you may think you have done sufficient, you shall hear them, if you listen in an evening, harping, like mice, for divers nights together.

If you use an old hive, and it is musty, holding it over the fire several times will sweeten it; and the bees will better like to be in a hive so ordered, than a new one, not purged with fire. Many people rub them before they use them with fennel and other sweet herbs; and also sprinkle them with honey and
beer,

beer, or other sweet liquors: but the former method is sufficient, in my opinion; however, this may be left to the pleasure of the owner.

The next thing after this is to stick your hive; and many and various are the fashions. But the method I would advise, is this:

Take a willow stick, about nine or ten inches long, and, according to the thickness thereof, cleave it into several thin pieces, shaving each until it will bend, then sharpen both ends, and stick three such splinters in the centre of the crown of the hive, and bend the three other ends to the sides of the hive, that they may stand like so many bows; then enter them in triangularly; and afterwards put a strong splinter quite through the middle of the hive, within four inches of the bottom. If it be a large hive, put another across that, about an inch lower; otherwise, not.

Mr.

Mr. Levitt prescribes this method :

" Take a stick of fallow or hazel, as
 " thick as a man's thumb, a foot long;
 " cleave it cross-wise, till you come
 " within a hand's breadth of the other
 " end; then bend each quarter several
 " ways, cutting off the sharp edges in
 " the midst of every one; then putting
 " the end that is not cleft into the
 " crown of the hive, and bending every
 " one of them a several way, stick them
 " into the sides of the hive, that they
 " may force the upper end of the stick
 " with a shoulder, to prevent the crown
 " of the hive from hanging downwards,
 " as they are subject to do (excepting
 " your hives are exceeding good) when
 " they are heavy laden with honey :
 " then take a small stick, cleave it in
 " the middle, cut both the parts flat
 " and smooth, and put them cross-wise
 " into the hive, within four fingers of
 " the board."

This method seems mighty reasonable
and

and proper ; yet it is attended with this inconvenience ; they cannot be taken out but all together ; and, therefore, the combs will be much broken ; and, when you take a hive, the honey will be in danger of running out to waste.



CHAP.

C H A P. V.

Of the Queen-Bee.

THIS bee is longer by half, and much bigger than a common honey-bee; yet not so big as a drone, but somewhat longer.

She differs from the common bee, both in shape and colour: her back is all over of a bright brown; her belly, from the top of her fangs to the tip of her train, is clean, beautiful, and of a dark yellow, something deeper than the richest gold; her head is more round than the little bees, by reason her fangs are shorter; her tongue is not half so long as theirs, for which reason she is incapable of working, for it is impossible for her short tongue to extract much out of any flower, were she never so industrious; her wings are of the same size with an ordinary bee, and, therefore,

therefore, in respect of her long body, seem very short, as they reach but to the middle of her train, or nether part; she hath straiter and longer legs and thighs than a honey-bee, which are of the colour of their belly; but her two hind legs are more yellow: she hath a lofty pace, and a countenance very expressive of majesty: her nether part is much longer than her upper part, and more sharp than an ordinary bee, having in it four ringles or partitions, and, in each ringle, a golden bar, instead of those three whitish rings which other bees have at their three partitions: her sting is but little, and not half so long as the other bees; consequently, she is not so well qualified for defence as the ordinary bees, who are properly to be considered as her guards.

From the above description, I hope any person, however unexperienced in bees, may be able to distinguish this bee from the rest, it being entirely different

different from the others, in shape, size and qualifications; and carrying in her ordinary deportment the evident marks of superiority, commanding respect and obedience.



CHAP.

C H A P. VI.

Of the Drone.

SOME of our authors have given an account that the Drone is the male bee; but I am of a different opinion, and have proved that the Queen-Bee blows all the bees that are bred; and it is very strange that there should be five hundred males, and but one female.

At the latter end of July the drones are all killed, and not so much as one left: some people pretend, that before the drones are slain, they leave the small bees pregnant, for the next spring; but it is my firm belief that there is no female among them, the Queen-Bee excepted, which we are certain is a female, by reason she is the mother of them all: and we may conclude, that it is ordered, by the Great Creator of all things, for this bee naturally to breed these

these bloes in her; and by Him directed to cast them into the cups; also, when cast in, ordered what sort they shall be, by Him whose hands are able to make any form or shape, and give to ever thing its nature, that so it shall be.



CHAP.

C H A P. VII.

How to choose a Stock of good Bees.

THOSE who are inclined to keep bees, and are not competent judges of them, may be sure of laying their money out to advantage, by following the directions here laid down: viz.

When you come to a garden of bees where there are many stocks, and you are desirous of purchasing one or two, first of all be sure to have them turned up, and take notice that they be plentifully comb'd down to the bottom, and also free from small round knobs, resembling small hail, and of that colour, upon the stone or board whereon they stand; if there be, be sure not to make choice of any such hive or stock, for you may be sure it is candied. But if the bees lay between two or three combs, and also lay round and close

D

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together, and none of these round white knobs, as aforesaid, appear, then such a stock will answer your expectation; but be sure to observe that there be not above one drone-comb: if there should not be above half a one, so much the better; for I have known some stocks that have had so many drone-combs, that they have been filled so full, that they have devoured the honey as fast as the working bees have got it, and so rendered them incapable to stand; for they cannot breed them in the lesser cups.

N. B. That you may not be deceived in regard to the drones, in choice of any stocks, you are to understand, that when the old bees have finished the first breed of females, they then (after the same manner) breed the drones in the drone-comb; (which is but one in every hive) but you may observe, that the drone-comb is nearly the backwardest in the hive, and made with deeper and wider cells than the rest.

The

The time most proper for the purpose of purchasing a stock of bees, is about Candlemas, old stile; or rather two or three weeks after that time.

When you have thus provided yourself with a stock of bees, (more or less) and brought them home, set them up, and plaister the hive all round; as soon as the bees are all got in, leave such a hole as your little finger will go in at, and lay a hatch or bundle of hay upon the crown of the hive, which will help to nourish their brood, for the warmer you keep them, the faster their brood comes on; you are likewise to take special care that the tom-tits do not pick the holes wider, and so let in the cold; for, if they do, you will suffer loss two ways; first, you will greatly damage the brood; and, in the next place, you will lose many of your working bees; for, if the cold gets into the hive, it benumbs the outside bees of the bunch, so that they fall down upon the

stone, where they must inevitably perish. When you find them begin to bear and load in a-pace, then make your hole as big again; for if you keep the holes too little, they will clamber one upon another, and so break off their loads from their legs, and greatly interrupt each other in the progress of their works; therefore, be sure to give them free passage; for their labour is great; and a small thing in our sight is, perhaps, a great interruption to them.



C H A P. VIII.

Of the proper Situation for Bees; and what Trees, Flowers, Herbs, &c. are most suitable for their Use.

LET your bees be seated not far from your house, free from the danger of an echo, covered well above, and stopped well below; let the door be somewhat to the west; let your beegarden be well fenced from cattle, and as well as may be defended from winds, especially the west and south-west winds, which are usually most constant in summer; let them be so situated that they may enjoy as much as possible of the winter's sun, that they may stir now and then; for that will be a means of preserving their health, by enabling them to come out to ease their bodies, they being of so clean a nature, that they will die before they will drop their ordure in the hive.

I was lately in a garden of bees, and the owner thereof desired me to inspect a few of his hives; whereupon, taking a stock and turning it up, I beheld a pitiful sight, for a great number of the poor creatures were dead, being greatly swelled, and stunk extremely, for they had been kept in all winter by the owner, for want of experience.

But, if they have not the benefit of the winter sun to induce them to stir out now and then, they will keep their ordure in them till they burst; and even those that recover are thereby rendered so sickly, that they are not in a condition to work, and it is very doubtful whether they ever get the better of such disorder or not; therefore, let this be a sufficient caution to you against depriving them of the sun in winter, as their success in the approaching spring and summer depends in a great measure upon it; for without they will not stir out of the hive to ease their bodies; which cannot fail to make them sick and ailing.

Be careful likewise to guard against the south and west winds; for they many times blow warm at spring, and also very high; so that if the bees stand exposed to them, they are subject to be enticed out by the mildness of the air, by which they are blown down upon the ground; and being early in the spring, when the earth is cold, and they being of so delicate and tender a nature, are soon chilled. I have known thousands loose their lives by this misfortune; and, after an high wind, I have taken an empty hive, and picked up hundreds of poor labouring bees for dead, but, by setting the hive by the fire, came soon to life again, and returned them to their hive, in as good a condition as ever.

The flowers, &c. which bees commonly prefer, are the following; viz. wall-flowers, black-thorn, bear-foot, dandelyon, primrose, daffodil, violet, gooseberry, &c. and of these chiefly in the month of March.

Ale-hoof, oak, peach, coal, turnip, fycamore, ribwort, stock - gilliflower, furze, strawberry, broom, beans, bears-ear, ozier, plumb, cherry, pear, and apple - tree, barberries, beach, maple, birch, apricots, &c. and of these chiefly in the month of April.

Water-creffes, angelica, parsnip, onion, leek, garlick-seeds, sage, mouse-ear, raspis, marygold, small yellow honey-suckle, poppy, woodbine, medlar, burnet, wild tanfy, archangel, hawthorn, elder, peas, and white honey-suckle, which, as I have said before, is the chiefest flower of all; and of these they chiefly gather in the month of May.

Dew-berry, blue-bottle, dyers-weed, white briony, common thistle, burrage, roses, red and damask, mustard-feed, mallows, melilote, calamint, cucumbers, &c. and of these in the month of June.

Carduus, benedictus, penny - royal, scarlet beans, May-weed gourds, horse-mint, therrents, yarrow-nip, sow-thistle, fuccory,

succory, dill, fennel, holyhock, French marygold, lavender, black-berry, buck, &c. and of these in the month of July.

Red eye-bright, knap-weed, heath, ivy, &c. and of these in the month of August.

Many of these flowers blow twice a year, as rosemary, archangel, burrage, although not the same roots: many afford matter of gathering in the morning before the dew be quite exhaled. If there be flowers near enough at hand to make up their burden of that sort they begin with, they will meddle with no other that journey; but, if they have begun to gather of a flower they like, and cannot find enough to furnish them, then they will make up their load of some other.

I have here given a sufficient catalogue of such flowers, &c. as will enable any person to make choice of such as their garden is not already stocked with, where the bees are situated; several
of

of which every garden should be furnished with for the advantage of the bees. Plumb and cherry-trees are what they particularly delight in.

Be sure not to let your bees be situated where they are in danger of being exposed to the smoak, for nothing is more offensive to them; therefore, let there be no brick or lime-kilns, brew-house, &c. near the place: let them not stand above a foot or eighteen inches from the ground, for if they stand higher they are more subject to the violence of the wind; and when beaten down from the hive, if there be a present shower, or the sun suddenly be overcast, they will quickly chill and perish.

A watering place near your bee-garden is also very necessary; they cannot subsist without it; and, if you can, have the banks on the north side of your pond free from all bushes and rushes, where they may drink under the wind, and in the heat of the sun, and suck it
out

out of the earth above the water, which they rather desire than to suck the pure water itself. But, if you have neither pond nor river within a small distance of your bee-garden, set water in wooden troughs, in your garden, and have light boards or corks within them, to rise or fall with the water, with many small cliffs or holes for the bees to stand on and drink ; keep hens and chickens, especially ducklings, from the troughs, for they will destroy your bees.

I have heard several persons, unacquainted with the nature of bees, argue that a place may be over-stocked with bees, as well as sheep on a pasture ; but I will assure my readers it is not so, for I have proved the contrary ; for, if there were an hundred stocks in one town, (viz. a small village) and it should be a honey season, they would all be a good weight ; and if it should be a cool showery time, in the height of the honey season, if there were only one stock in that

that town, they would not be heavy enough to stand; for, I can assure you, there is plenty of honey one day, and none at all another.



CHAP.

C H A P. IX.

Of the feeding of Bees.

IN this chapter I shall give proper instructions how bees are to be fed, and consider the time most proper for feeding them.

And first, it will not be worth while to keep any stock that does not weigh fourteen pounds, nor ever of that weight if it be not well comb'd down. If you should have a stock about that weight, and find they have done getting honey, as soon as you can get them any new honey, give them about six or eight pounds all at one time; put your honey in a crock, and stick some empty combs amongst it; if you have no empty combs, get some wheat straw unbruised, and stick it full of them, cut about a span long.

When you have got honey that is knit to about eight pound, put in a pint
and

and an half of beer or water, (either will do) work and stir it together, until you make it as free as new run honey. If your honey be knit, be sure take notice that it be not candied; for if you give them candied honey, you had as good give them poison.

When you have ordered your honey as here directed, take an empty hive, and put therein some straw or hay, so that you may set the edge of the pot to the edge of your empty hive, and set your stock upon it, then your bees will have but a little way to come to fetch up the honey, and you will by so doing prevent great hazard of their lives.

If the weather is cold, and your bees should require feeding in April, be sure to be careful in giving them food as here directed; and observe that the most proper time to feed them is about seven o'clock in the evening; and in the morning, as soon as possible, take your crock away again, for at that time they are
very

very eager after honey, there being none for them abroad; and they will have it wheresoever they can find it; for they care not how it comes if they can but find it.

If you find you have about the middle of April some stocks that get light, and you think they will spend all their honey by the time the month is expired, fail not to provide them with sugar-betimes, before they have spent their stock; for, if you supply them with a little sugar every day, they will eat what you give them, and save their honey, which will prevent the danger of losing them entirely; for, if you should neglect feeding them, so that they should spend all their honey before you begin feeding, and be confined in a few days on account of bad weather, the next fine day that should come, they will all come out, which if they do, they will never afterwards stay in to do any good: I have tried all manner of ways to recover them,
but

but to no purpose ; for it makes them so discouraged, that they are out of all hopes of ever getting any thing again ; and, for that reason, will not try to work any more, but are so sunk into a lethargy and carelessness, that they will yield themselves a prey to a most grievous famine rather than take pains to recover themselves ; therefore, take care to begin feeding them betimes, for better to begin too soon than too late, as they are of a covetous nature ; and the more they have the better they will work.

The most proper method to give them sugar is to make a scoop of elder, which you may run in at the hole of the hive, and so pour it in, giving the hive a rap or two, and they will come to it just like sheep round a hay-rick in the time of a storm ; and when used to it a few times, they will run down at the least disturbance possible, for sugar is preferable to honey, because they will not rob for sugar half so soon as they will
for

for honey; besides, if you give them sugar, you need not give them candied honey; and they will do full as well with sugar as with good honey.

If you have stocks that are forward at the latter end of May, or the beginning of June, and that are ready to swarm, and the weather be wet and cold, and continue so for several days together, and you observe them to bring out white young bees, then get a quarter of a pound of sugar, and mixing it with beer or water, turn your stock up, and pour it all over them: by this means you will save your stock, if not from losing the swarm, at least from utter destruction; for, if you let them alone when you see them in that condition, they will set bodily to work, and pluck them out headlong, as it were children out of the womb, both little bees and drones, masters, &c. and rid them of all together, and ten to one but it will prevent their swarming that year; but,

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if they should swarm, they will be very late, for at that time their honey is all gone, and they are fearful that the weather may continue unseasonable, which causes an obstinate temper amongst them, obliterating all tender feelings, so that they will fall upon their young, and massacre them, for they see nothing but a grievous famine before their eyes, which makes them willing to be rid of their encreasing family; but, either feeding them, or a few fine days ensuing, alters their minds, and prevents them from killing their young; so, when you see the first appearance of their throwing down their brood, be sure feed them next day, by which means you will prevent them from doing what is before mentioned, and you will not sustain so great a loss.

C H A P. X.

*Of Candied Stocks, and the Disorders
occasioned thereby.*

WHEN a stock becomes candied, it never fails to cause a very great disorder among the bees; the candied honey being unfit for food, and the smell being so offensive to them, that some of them will leave the hive every day, and sometimes even the queen-bee will desert them, and then nothing but decay will ensue, for there can be no more bees bred, and their family consequently will decrease every day. When this is the case, they go out as though they were going to work, but being sensible of the condition they are in, care not to return home again.

But if their governor be lusty and strong, she will give them orders for a removal, and so come out, as if going

to swarm; and will settle in the same manner; and ever, if you put them in again, they will come out the next fine day; and thus, for several days together, they will endeavour to quit their hive, until, perhaps, they lose their governor; which, if they do, they will do no more good of themselves.

To remedy this misfortune, the best thing that can be done with them is to take away their governor, and let them remain without her one whole day; then put them to some other stock that is thin of bees, and they will assist them greatly.

When you put them together, let it be near night, on the close of the evening, thus: take a rare, and set it upon the ground, near to the stock you intend to put them in, and turn the crown of the hive into the rare, and set the other hive upon it as gently as you can, so that they may creep gradually up together; by so doing, the other bees will
receive

receive them kindly for their fellows; but if they be disturbed when put together, they will fall to fighting, and much harm will ensue, for they will make great slaughter in a little time.

To prevent which, take care to wrap a cloth round both hives, that one bee come not out; for when they have crept close together for some little time, they receive each other's breath; after which, they will allow them to settle in their commonwealth, and behave as loving brethren, and will not after provoke one another upon any consideration, but will agree to work together as though they were all of one family.

On the 23d of June, 1765, the following circumstance happened to a neighbour of mine.

A swarm came by accident near to his house, and he hived it; and presently after a second came also, and entered into the same hive; so there were two swarms in one hive: on which ac-

count I was sent for (as I usually am on such occasions, for several miles round this country). If I had been there at the time the first swarm settled, the second might have been prevented entering in to them, by throwing a cloth over the hive, and so confining them close, until the other had settled elsewhere; but as they were now joined together, some method was immediately to be used, in order to divide them, otherwise, I was well assured, one of the governors must die in a little time, if not speedily prevented; therefore, I took the following, as the most proper, method, in such a case.

First, I took hold of the hive, and gave it a stroke or two with my hand, and they immediately came out, by which I perceived they had seized fast on one of the queen-bees, and would soon have killed her, if I had not immediately rescued her; it was very surprising to see how resolute they were, and

and determined to murder her, for there was a whole parcel of bees all on a heap, about the bigness of an apple of a middling size, which stuck so close together, that I rolled them about like a hedge-hog, and they would not part; till, at length, I was obliged to get a small stick, and forced them to release the poor creature, who was confined in the middle of them; but they were very unwilling to part from her, being very spiteful, and determined that she should die.

After I had got her from them, I kept her in my hand for some time, and then put her to them again; but they seized her after the same manner; this being no more than I expected, I took her from them, and took the hive that had the other governor in, and put in a sufficient number of bees for a swarm, and set them at a distance off, so far that they could not hear each other's sound. I kept the other bees by

themselves till they began to be very uneasy, as I knew that was the best time to offer her to them again; so I put a few bees in the hive which that swarm was to go in, and put her to them, and they received her kindly; I then turned the hive down on a cloth, and put more bees to the edge of the hive, but at first they lay very sulky, till I stirred them about with my finger, and then they began to run in, so I knocked them on the cloth, and they all run in like sheep into a fold; and by this means their minds were changed from wilful murder to mutual love and friendship.

Thus it appears any thing may be done with them if proper means be used; but without that, nothing can be done. It was wonderful to observe what a change I wrought in their minds in a short time; being a little before determined to kill and destroy, but now resolved to protect and defend, love and embrace each other; when they had all mixed together

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in one hive as aforefaid, they had unanimouſly agreed that the other queen-bee ſhould be ſaved, and this (which I preferred) ſhould die; and if I had taken the other queen-bee out of the other hive, and put into this, they would doubtleſs have aſſiſted her as freely as they did this.

If you have a ſtock at ſpring that throws down candied honey, at the latter end of May take care to rear it; cut the crown of an old hive out, and put under it, for, by this means, they will get a good weight. I have heard ignorant people ſay they will not have the bees reared, becauſe it will prevent their ſwarming; but this is becauſe they know no better, for I am very certain from experience, that if a tub is put under them, and if they chance to breed a governor, they will come head-long down the tub and ſwarm.

Many people are of opinion that the reaſon of bees ſwarming, is want of room;

room; I am surprized that their own reason should not convince them to the contrary, especially those who have any concern in keeping bees, for many times they are known to lay out at times a month together, and perplex themselves, to no purpose, and sometimes will continue so until cold weather come and drive them in; but if want of room occasioned them to swarm, why do they not so when they lay out so long? However, I will endeavour to convince the reader, that it is not for want of room that they swarm; which I hope to make sufficiently evident in the course of the next chapter.



CHAP.

C H A P. XI.

Of the Swarming of Bees, the Occasion thereof, and how to make them swarm.

I SHALL, in this chapter, endeavour to make my readers understand the true reason of bees swarming. I have proved, by long experience, that it is not for want of room that they swarm; for they will continue in the hive as long as they want a governor; but, as soon as they have got one, they immediately prepare for a removal, and constitute an independent state of their own. But if the weather be wet, showery, and cold, they will kill their governor, and then they will not swarm for a good while, if they do that year.

As I flatter myself that I have, by long study and experience, become perfect in understanding the wonderful ways of these curious creatures, it is my intention,

intention, in this chapter, to make them public, that the world may reap some benefit from my observations.

When one swarm robs another, and the swarm that is robbed makes no resistance, some means must be used to make them oppose the spoilers, or the swarm will be inevitably ruined.

On July 12th and 13th, 1765, I had two swarms, one in my own garden, and one about half a land's length off, and one robbed the other, yet they never fought, or made any resistance against their lawless invaders.

People unacquainted with the nature of bees, might have seen them, and not been able to judge what they were about; but I presently perceived there was mischief in the case. It was remarkable to see them let the robbers in and out peaceably, as though they were belonging to their own family: however, I knew that I must endeavour to make them resist their enemies, and protect
their

their property, or else there would be more damage done than could easily be repaired; and the method I took to make them do so was this: I laid my finger upon them, and pressed them softly against the hive, which made them quite enraged, and then they soon began to fight their plunderers very freely, and, at length, beat them quite off.

It is surprising to see how fierce they are when they go a robbing. At first a bee or two comes at a time, as it were for spies, and hovers about the mouth of the hive, to try what condition they are in; and if they think they can overcome them, they go and acquaint all their fellows of it, who, without farther hesitating or consultation, come in a large body upon them, with a full resolution to break into the hive, and so fall a fighting with great eagerness, like two armies, mortal enemies to each other, and make as great a slaughter; for,

for, in a small space of time, great numbers of them will be killed on both sides, by their poisonous darts, which makes them fall in such incredible quantities, that one would think they were resolved upon the utter extirpation of each other.

If they think they will be overcome, they will yield themselves prisoners to them, and will not only give their honey to their enemies, but will assist them in carrying away their own stock, and when so done will stay with them, thinking to make it their home; but their enemies will by no means admit of it, but will still pursue them with unremitting vengeance; and not content with having robbed them of all their substance, they will now murder every one of them, if possible, and in so barbarous a manner as to kill and tumble them out headlong.

In the year 1763, I was sent for to Tisso in Warwickshire, to order a swarm
a farmer

a farmer had there, which had entered into a hollow tree. Several persons had endeavoured to get them out, but to no purpose. When I came to the place there was a great concourse of people gathered together, to see the performance of my getting them out. There was a broad hole cut in the tree, which I was glad to find. I went up the ladder, a hive being tied close to the hole of the tree; and began to stir them about, by which I perceived where their governor was, which I presently got hold of, and put into the hive, with part of the bees with her, and then I came down again. Several of the spectators thought that I could do no more good with them than those who had attempted to remove them before; but I told them, if they would have a little patience, they would soon be convinced to the contrary. I then went along with the owner to a neighbouring house, leaving them as I have just told you.

When

When we came back again, which might be in about an hour, or scarcely so much, they were all got into the hive, to the great satisfaction of the owner, and astonishment of all the spectators, who little expected so difficult an affair to be managed with so much ease, and in such a manner as they could not in the least conceive, little expecting my method would be attended with such success; but they being ignorant of the nature of bees, it was no more than what could be expected.

The manner to know where the queen-bee is amongst a swarm, is this: First, Observe particularly the motions of the bees, and where the governor is you may perceive a bunch extraordinary, where they will clamber one upon another, with a gentle movement of their wings, and thrusting one another up together, like a flock of sheep forced into a pen or fold, running from one side of the bunch or cluster to the other; and

and when they come to the place where the governor is, they will give their wings a quick hover or flutter.

These observations being strictly remarked, you may at any time find where the queen-bee lays; as to the particular marks to know her from the rest, I have already given sufficient directions, whereby she may be very easily distinguished from the others.

If two swarms at any time settle together, the method to part them is this: take four or five hives, and put a few of the bees in each, and then you may the more easily observe the governors; the more parts you put them in, the better you will find them; which when you have done, keep them until you have parted the bees equally; then put in your queen-bees, and by this means your swarms are parted without any further trouble.

If they chance to settle on the body of a tree, observe their motions as before

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directed,

directed, and you will soon find their governor on the branch or cluster; then all you have to do in this case is, only to get off equal parcels of bees, as near as you can, into each hive, and so put the queen-bees in as before.

The best way to keep the governors safe the time you want, is to get a small penny box, and make a little hole in the lid, just in the middle, and put her into it. I have kept one in my waistcoat pocket for many days, just within my pocket, with the hole uppermost, giving the box a touch with a small matter of honey (about half a drop is sufficient) in two days; and observe only to touch one place with it, for fear of clogging her wings, and so making her unable to fly.

I have found out a most curious method of preserving queen-bees alive, and to have them ready at any time to supply a stock, when they, by any misfortune, lose one, which is thus:
provide

provide yourself with a little wooden box, in form of a small snuff-box, make it pretty full of small holes, about so wide that a knitting pin of the larger sort will go in at them; into this box put the queen-bee, then tie a strong thread to it, and make a hole in the crown of the hive, so wide as to let down the box by the thread, and observe to let it down just between two of the middle combs, so will she receive the natural heat of the bees, by their getting round the box; and they cannot come at her to do her any manner of harm; for if they could they would not suffer her to be there, but would soon dispatch her. You may draw the box out when you please, and put honey to her; and by this means you may have queen-bees by you ready when you want them. Sometimes the very best stock you have looses their governor; and if you have not one to supply her place, you have

them to take out of the hive, which is far more troublesome and difficult.

I was sent for to go down to Lord Compton's to manage a swarm for his bailiff, that had laid out seemingly for swarming for three years, and yet had never swarmed; but, being now late in the swarming-time, I persuaded him that it might be hazardous whether they would stand or no; but he told me he would venture them; so I took a swarm out of it, and set it up, and retired into his house, and presently the gardener came in and acquainted us that the bees were busy at work already, which gave him great pleasure and satisfaction; and the gentleman told me, that it was the most surprizing thing of the kind he ever saw in his life; and could not have believed it possible to have been done, unless he had actually seen it.

I told them I would come again in the season to examine what weight they were; which I did about slaughter-time,
and

and found them twenty-four pounds; and they both swarmed the next year, to their great satisfaction.

I have also found out such a curious method of increasing the number of bees, as I here do challenge all Europe to equal. It is not to be expressed what satisfaction I felt, when, after several difficult attempts, I at length found that I had succeeded; therefore, having had this art (together with many others) confined within my own breast, for this fourteen years and upwards, I will now disclose the same, and make it public, for the great benefit of my countrymen, and others, in whatsoever part of the world this book may be dispersed unto,

But, according to my proposal, in respect to this curious method of preserving and increasing the number of bees, and making them to swarm, &c. to their great satisfaction and advantage, be pleased to observe:

To make them swarm, take the stock and turn it up, with the crown in a rare; the rare, cloth and hive, that your swarm is to be put in, must be set all ready, at a distance from the place where they stand; the empty hive must be put on the stock as quick as possible, the cloth wrapped round both hives, and a little nail, or any such thing, must be used to fasten them in.

Take another empty hive, and set in the place where the stock stood, to employ the bees that come from the field; then go to the stock, and rap it with your hands gently all round; if you rap it hard, you will loosen the combs, and damage your stock; but, by rapping gently, you will hear the bees run roaring up; then you may unloose the cloth, and hold the hive hollow, and you may have the pleasure of seeing them run up, and with ease may observe the governor also run up.

When you have got all the bees out,
then

then take your hive away which was to receive the bees that had been abroad in the field, and set it just by; then take your stock and set it in the place again, and take the swarm and prove it, thus: Take a cloth, and spread it on the ground, set another hive on it, and put a small stone under it to keep it hollow; then, with a ladle, take them out of the hive, and lay them down by the other hive, and they will run in.

But observe well that you let not the queen-bees escape your notice; the first which you see do not interrupt; but when you perceive a second, catch her, and put her into the old stock, and set the swarm up: but if you find above two governors, then you may make more swarms; sometimes they will breed ten or twelve governors; on the contrary, if you find but one in a stock, then you must have one by you ready, when you are putting them into the hive where your swarm is to continue; when your

bees are running in, then put your governor amongst them, and they will all run up together; so, with running, and the heat of the bees, she receives the same smell with their breath, and they receive and accept her as their own, as if she had been bred amongst them; sometimes, by chance, they may dislike her; and if they should at any time do so, let them have their own governor, and let the old stock be without one for a whole day, then put the stranger into it, and they will receive her.

If you set the swarm in the same garden that the old stock is in, you must have a watchful eye over them; and if you find that your swarm gets less, then take your old stock, and set it down on the ground about the space of three minutes, and the same do with the swarm; then set the old stock in the swarm's place, and remove them backwards and forwards until you make them equal, according to your own mind.

But

But if the swarm be carried to a distance, it is much less trouble, for then they go on without any interruption; but when they are set in the same garden, they go eager to work, and on their return they forget their new habitation, and so go to the stock; yet this is only the case when you make them swarm, for when they swarm themselves, it is a thing designed by them for some time before they can accomplish it, and what they are fully resolved to do; so, when they come out, they are as careless of the old stock, as though they had never seen it: but when they are compelled to swarm in this manner, it is not designed of themselves, but is brought suddenly upon them, and they, for that reason, are apt to forget themselves when they come from work, and go to the old stock; but if changed as directed, you bring satisfaction on all sides, and may have as good swarms in this manner as any
in

in the world, if rightly managed; for, by experience I here speak it, I have, by this method, had as good swarms as I ever would wish to have.

The best way to prevent all this trouble, is to carry the swarms about half a mile off, for then they will go on as well as any swarm in the world, and without any interruption, and will ease the owner of the trouble of changing them as aforesaid, when in the same garden, &c.

If they should chance to dislike their governor at any time, take the swarm and turn them all down upon a cloth, and set a fresh hive just by the cluster of bees; then stir amongst them and disturb them a little, so as they may run in gradually: their running in together never fails to make them reconciled to their new governor. By this method you will prevent them from destroying their governor at any time: if they should dislike her, it will be known

known in about ten or fifteen minutes time; if they do not disagree in this time, they never will, but will go eager to work, and work as well as any natural swarm in the world.

I have sometimes been blamed by ignorant people, on account of forcing bees to swarm; for they have let them lay out one week after another, till such time as the honey-season has been almost over; and then they have come and desired me to make them swarm, by which they do not get honey sufficient to enable them to stand, which makes these people believe that made swarms are good for nothing; but it is their ignorance of the nature of bees, which makes them think so absurdly; otherwise, their own reason might be convinced by the bees working; for if there was honey to be got, they would certainly get it; but if there is none, it is impossible for them to make it from nothing.

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I have had made swarms weigh forty pounds and upwards; and if those un-experienced people had some of that weight, it would convince them to the contrary.

I will here give you an account of a very strange circumstance which happened to a neighbouring miller's bees; it was as follows: he had three swarms, which came out all at one time, and settled round the body of a crab-tree together, which appeared a surprizing heap of bees; so being immediately sent for, (as I usually am on such occasions) I began to part them, which being done in a little time, by finding their governors, I then divided them equally, and three large swarms they were; after which they went on very well; but what is most surprizing, on the eleventh day after they were in the hive, they all swarmed together again; two of them went together, and one single; but the made swarms
were

were heavy enough to stand, which was a thing almost unprecedented, and, therefore, was extremely worthy of remark.



CHAP.

C H A P. XII.

Of Bees Enemies, and how to prevent them from being plundered.

WHEN you find that your bees have done getting honey, take care to make the holes of your hives about so wide as your little finger may go in at, for at this time there are many thieves abroad; and some years produce great numbers of wasps, which are the very worst enemies to bees; for when the mornings and evenings become cool, and the bees begin to huddle close together, the wasps will come in and out, and in a little time will take off a great part of their honey; for one wasp will carry away as much honey at once as a bee will at twice, and they will endure the cold considerably more than the bees, and will work very sharp when the bees do not stir out; this makes them
come

come frequently at mornings and evenings, when the bees are still; and they are very searching at that time, for they will try and prove the bees if they think they can get any thing from them, and will seize them very sharp, so if the holes be left too wide, and the wasps come in a large body, it will be almost impossible to keep them out, for they come so eager and so fast, resolving to put the bees to utter destruction, that they will fill the hole entirely up, by thronging to get in.

If there are several stocks of bees in a garden, and one of them should go a robbing, when the rest hear the conquering sound, they will immediately join the victors with all their strength and might.

Some time ago I went a few miles to visit a relation, and stayed a few days; returning home, before I got to my house, I perceived there was mischief broke out amongst my bees; and upon
going

going into my garden, I soon perceived the matter, which was as follows :

One of my neighbours had five stocks, and nine of mine had joined with them, and had killed four stocks out of the five, which I was very sorry to see, as I could have prevented it if I had been at home, by using proper methods.

When you have this misfortune, make the hole of the stock that is robbed, so little that it will only admit one bee to come out at a time, and plaster some very soft cow-dung all round the hole, as wide as you can cover with both your hands, and that will keep them off as soon as any thing; if they continue coming, keep the cow-dung very soft, by wetting it frequently; for being very soft, and their feet rough, it sticks to them, so that when they go to settle upon it, they will start back, as though they had flown against a sword, for it is very offensive to them: by keeping to this, you may drive them off; for they
do

do not like to be stopped quite in; nor is it proper to do so, for you will then keep many of your own bees out as well as the robbers: for I was acquainted with a neighbour that had a stock robbed, and falling in a passion on the account, he threatened to kill all the robbers, be as it would; so he stopped them quite up, and made a fire before the hive, by which improper method numbers of poor industrious creatures perished in the flames, which was a barbarous action, for he not only killed the robbers, but also a great number of his own bees, for he had several other stocks: but this may be imputed to nothing but want of judgment, as it might have been remedied by a much better method than so cruel a one as the putting such a number of industrious useful creatures to a grievous death; for there is no one action of their lives but tends to the manifest benefit of mankind.

If you stop them quite up, be sure to open them towards the evening, or you will keep several of your bees out, and the coldness of the night will certainly kill them: by this means your stock will be much lessened, and of course less able to resist their enemies.



CHAP.

C H A P. XIII.

How to increase Bees.

THE following method I would recommend, as the most proper to increase bees, considerably to the advantage of the owner.

If at any time you have a cast come out, first prove how many governors such a stock has, thus : Take a cloth, and spread it upon the ground, then take an empty hive, and raise it a small matter from the ground, by putting a thin stone, or some such thing under it; then take a few bees, lay them down close by it, and stir them, and then they will run in with remarkable chearfulness; then turn out the rest of the bees upon the cloth, a few at a time, about as many as you can hold in both your hands, and about a foot from the hive; then you will have an opportunity of

seeing them run, as it were sheep into a fold; and you may easily discern their governors running stately along the cloth, and, if there are more than one, take the supernumerary ones up, and put them into a box, with a hole in the lid, as before directed, until you have got them all. Sometimes there will be three, sometimes four, sometimes six. When you have got them all, divide your bees into as many parts as you have governors, then put your governors to your parts of bees so divided; this being done, take stocks that are full of bees, and strike them gently on the outside of the hive, and so turn them all out into empty hives, the same as a swarm, and set them again where they were before; by this means you will have larger swarms than you can have by any single swarm, by reason you have all the bees in the hive: then take the parts of your cast, and put each part into the respective hives, where the other bees came

came out; you need not concern yourself about the smallness of the parcels, for when they come into a large brood, and honey, and that large brood comes out, they will be full of bees again.

The method of putting the parcels into the honey and combs, is thus :

Wrap the honey and combs up close, and keep it as warm as you can till night, and tie your bees up close, and keep them in till night; then take a rare or bucket, and turn the crown of the hive into it; then set the hive of brood and honey upon it, and fasten a cloth round them both, so as not one bee can come out: they will certainly have run up by the morning, and you may then place them where you think proper.

This is a most curious method to increase them; for, by this method, you will have six swarms out of one cast, which is sufficient, in my opinion, for any reasonable person to expect: by

chance some of those stocks might have swarmed; but of that no one is sure; but when you have a cast, an opportunity offers to increase them; and the sooner that business is done the better; for if you keep a cast by itself, it too often happens that it cannot be made to stand.

I have had several good stocks in this manner, produced from no more bees than might be contained within an egg-shell.

I have also increased them by the following method, when I have been at a loss, for want of governors, or queen-bees.

Take a stock that is full of bees, and put them in an empty hive, which set in the stock's place; then set the old stock upon the crown of it, and they will work in both hives; and if it be fine weather, they will both stand: but if you keep them both, you must be sure to take care that your old stock is pro-

provided with a governor at the slaughter-time.

You may drop a stock that is to be taken up, by a small piece of puff, according to Mr. Thorby's direction; put them together in the same manner as you was directed to do your parts of casts: but you may be assured, that there is but one time in the year that they will work without a master, and that is in honey-time.

If you take governors from stocks in the honey-season, they will work as well as those that have a governor, by reason their minds are so intent upon gathering honey, that they scarce know or consider how things are in order amongst themselves.

When you have stocks that are not promising to stand, and you are desirous they should, and you have also other stocks, that are heavy enough to stand, then treat them according to the following directions:

Take your stock that is of sufficient weight to stand, and set it upon the ground; set likewise your little stock upon the ground, where let it stand about three minutes; when that time is expired, take it up, and set it in your heavy stock's place; at the same time taking your heavy stock, and setting it in your light stock's place: by this means they will be both heavy enough to stand in a little time; but take care that it be done when the weather is promising, and about the hour of ten o'clock in the morning, for then they will work together all the day after, and not trouble themselves about fighting, but receive each other as fellow-helpers. Sometimes, when the weather does not prove fine, and they consequently cannot come out, they will fight a little; but if they can come out to work that day, they will by no means quarrel or fight.

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Great care should be taken that this be done before the honey-season be too near expired; and be sure not to change them by any means in the middle of the day, because the governor generally goes abroad about that time; and if she should be gone out, and come in soon after you have removed them, they may perhaps fall upon her and slay her, which will be an irretrievable loss; but if you order them at the time above directed, you need not fear, for after Old Midsummer, the time of casting in their young being mostly over, they take their pleasure, but seldom go very far abroad; and they are also very difficult in their coming out, for if it be not fine warm temperate weather, they are afraid to trust themselves in the open air.

It is admirable to see the queen-bee's coming out; when she comes forth, there is always a select detachment to attend her to the door of the hive, where they wait, with silent respect,
till

till she takes wing, and then they all go in again, and return quietly to their respective places.

Here let us pause, and admire the wonderful works of the omnipotent Creator of the universe; how he has endued these minute animals with a sagacity almost equal to rationality! how he has imparted to them a knowledge of times and seasons, and how to provide for futurity! how they are equally concerned in propagating their species, and supporting their own existence; for about Old Midsummer they leave off breeding, because they would then have the combs empty to deposit their honey in.

If we consider their government, it will convey a very mortifying reflection to beings who stile themselves rational. In their state, they yield an implicit obedience to the laws made for the good of the community.---Alas! not so with us!---Their rulers have no sinister purpose

purpose to answer: their happiness centering in the happiness of the public.--- Happy if our rulers would act upon the same principle!----They maintain no animosity against, nor party-disputes with one another, but labour lovingly in the common cause, and carefully lay up for the public what provisions they collect as individuals. Observe the bees in the summer, and blush, O ye idle and indolent!



in the year 1800, the happiness of
Europe to answer: their happiness con-
sisting in the happiness of the public.
Happy is our rulers would act upon the
same principle! They maintain no
animosity against, nor party-difference
with one another, but without jealousy
in the common cause, and carefully lay
up for the public what provisions they
collect as individuals. O give the bees
in the summer, and blood O ye the
and industrious!

It is necessary that the government
should be able to pay a portion of
the national debt, and to do so
without any other means than
the sale of the public lands, and
the issue of new paper money.
In the year 1800, the government
was able to pay a portion of
the national debt, and to do so
without any other means than
the sale of the public lands, and
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CONCLUSION.

ICANNOT conclude this small, but valuable treatise, without desiring the readers to notice, that what I have here written for their instruction and advantage, is not pillaged from former writers, but the real result of my own experience; which I have proved, to the satisfaction of several persons, in this, and other neighbouring counties; having made the nature of bees my principal study for upwards of thirty years; and my desire was, if possible, to find out all their ways and motions, which, by God's assistance, and an unwearied perseverance, I hope I have at length obtained; and I am thoroughly convinced, that the methods herein set forth,

forth, are of such advantage, that all persons who are concerned in keeping of bees, and chuse to reduce my directions to practice, will find them turn out to their benefit and satisfaction.



27 DE 62

F I N I S.



* * By turning to the Frontif-
piece, exact Figures of the
Queen-Bee and the Drone may
be seen; likewise, a just Repre-
sentation of the Difference be-
tween the Queen-Bee, or Go-
vernor, and a common Bee.



By turning to the front
page, exact figures of the
Quincy and the Quincy may
be seen; likewise, a full
description of the Quincy
may be seen. Quincy, on the
other, and a common one.

27 DE 62

